

bined avalanche continued not only three miles eastward to the foot of the mountain, but a mile farther over comparatively level ground. About 120 acres of heavily wooded spruce timber went down in the slide, leaving the rocks behind almost perfectly bare. The average width of the avalanche was about 20 rods, and at several points at the top of the slide it was at least 60 feet deep. In passing over the old landslide of seventy years ago, half way down the valley, it tore out the logs, rocks, and debris that had been then deposited. The foot of the slide now covers an area of nearly a quarter of a mile square, on land that is about 1,300 to 1,478 feet above sea level, making an actual fall for the whole mass of about 2,400 feet. The slide apparently ran down the ravine occupied by Clay Brook and landed at its mouth in the valley of the Mad River, latitude $44^{\circ} 8'$ north, longitude $72^{\circ} 50'$ west.

THE ORIGIN OF THE ST. LOUIS TORNADO.

Mr. M. C. Walsh, of La Salle Institute, Glencoe, Mo., under date of December 31, 1896, says:

I saw the formation of the tornado, May 27, 1896, which went into St. Louis from the southwest. Two long, heavy black masses of cloud, one moving from the southwest, the other curving from the northeast, having been drawn away from a column moving in a northeast direction, met at the height of about 1,000 feet over the plain, in front of Glencoe; there was a great tossing, the southwest column plainly bellying into the one from the northeast; a whirling was soon discernible; its rapid motion was seen from the small white masses of vapor that were thrown off and which seemed to be trying to catch on; presently the inverted funnel with the long, black, rugged tail appeared, and then the whole mass moved off northeastward, leaving a heavy bank of white connected clouds in the southeast, the only remnant of the great black mass that had come from the southwest. I said, "St. Louis will catch it now." The whole black mass was whirled away with the greatest rapidity. The twister got to the ground near Kirkwood, on the Southern Pacific Railroad, about 14 miles from the place of its formation.

FROST FORMATIONS.

A letter from Prof. E. E. Hand, of the South Division High School, Chicago, Ill., referring to the MONTHLY WEATHER REVIEW for May, page 213, says:

I had made various observations on the forms which Mr. Valerio so graphically describes, while I was teaching at Kuttawa, Ky. I have never found any one who has seen them nor any reference to them in print, so I have been unable to determine whether we had here a problem in biology or meteorology to solve. My conclusion was, since I found the frost ribbons only on the dittany (*Cunila Mariana*), that there was some peculiar exhalation from this herb that froze as it came out. Of course I may be wrong, as my observations were limited, and I have never seen it in Illinois. I shall be pleased to hear from other observers on the subject.

In addition to the previous references to articles in the American Meteorological Journal, perhaps the most interesting reference is to the article by Prof. John Leconte, pp. 20 to 34 of the Proceedings of the American Association for the Advancement of Science, Vol. III, March, 1850. According to him these interesting frost formations occur on a large variety of plants, and can hardly be considered as biological phenomena. The explanation given by Professor Leconte, in connection with that suggested by the Editor in the American Meteorological Journal, Vol. IX, p. 523, April, 1893, will, it is hoped, serve as a starting point for laboratory experiments and the complete elucidation of these frost formations.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Mariano Bárcena, Director, and Señor José Zendejas, vice-director, of the Central Meteorologico-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the *Boletín Mensual*; an abstract translated into English measures is here given in continua-

tion of the similar tables published in the MONTHLY WEATHER REVIEW during 1896. The altitudes occasionally differ from those heretofore published, but no reason has been assigned for these changes. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart III.

Mexican data for July, 1897.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
Artega (Coahuila)...	Feet.	Inch.	° F.	° F.	° F.	%	Inch.		
Collima	1,656		87.4	64.6	80.6	5.63			
Cullacan	112	29.67	96.6	66.2	86.2	62	2.88	w.	w.
Durango (Seminario)...	6,241	24.10	91.4	59.0	75.2	52	6.48		e.
Leon	1,798	24.84	83.5	55.2	68.2	67	8.30	ssw.	e.
Linares	1,188		101.8	66.2	84.4	0.98	se.		
Magdalena (Sonora)...	1,508		91.9	75.9	85.3	3.15	sw.	n.	
Merida	50	29.95	96.8	69.6	81.5	78	4.90	e.	e.
Mexico (Obs. Cent.)...	7,473	23.10	77.2	53.6	68.0	68	5.10	nw.	ne.
Mexico (E. N. de S.)...		23.06	81.1	51.8	65.7	69	3.74	nw.	
Monclova (Coahuila)...	1,926		100.4	71.6	87.4	1.10			
Monterrey	1,636	29.18	103.1	68.0	86.2	62	0.48	ne.	ne.
Morelia (Seminario)...	6,401	24.00	75.2	50.2	61.0	77	4.18	ssw.	se.
Oaxaca	5,164	25.10	87.1	55.4	71.2	74	5.32	nw.	e.
Parras (Coahuila)...	3,986		95.9	68.4	79.5	0.68			
Puebla (Col. Cat.)...	7,112	23.40	79.5	51.8	64.4	73	8.75	e.	n.
Queretaro	6,070	24.21	84.2	56.7	68.5	64	4.90	e.	
Saltillo (Col. S. Juan)...	5,399	24.90	85.0	62.2	76.6	53	1.06	ne.	ne.
San Luis Potosí	6,202	24.16	82.0	58.3	69.3	65	1.85	e.	se.
Silao	6,063	24.30	80.2	61.7	70.5	68	4.46	se.	ne.
Toluca	8,612	21.95	73.9	46.4	59.5	75	6.18	ese.	
Torrón (Coahuila)...	3,730		104.2	75.6	86.4	5.32			
Trejo (H. d. S., Gto.)...			81.5			8.00	se.		
Vaqueria			90.3	61.9	72.0	8.07			
Zacatecas	8,015	22.57	77.0	50.0	63.0	69	8.82	e.	e.
Zapotlan (Seminario)...	5,078	25.10	83.1	58.8	71.1	69	9.21	se.	se., ne.

CLIMATOLOGICAL DATA FOR JAMAICA, W. I.

Through the kindness of Mr. Maxwell Hall, of Montego Bay, Jamaica the meteorological service of that colony has acceded to the request of the Editor for the prompt communication of an abstract of the very interesting climatological records of that highly important West Indian station. The climatological summary for July, 1897, furnished by Mr. Hall through his assistant, J. F. Brennan, of the Meteorological Office, is reproduced in the following table.

The stations Kings House, Hope Gardens, and Stony Hill Rectory are near Kingston, and are not supplied with mercurial barometers. The barometric pressures, as given for these Jamaica stations, are reduced to the standard instrumental temperature (32° F.) and standard gravity (latitude 45° and sea level), and all except Hill Gardens are also reduced to sea level. The thermometers are exposed in Stevenson screens, and their readings have been corrected for instrumental errors. The wind movement is measured by Robinson anemometers, assuming the factor 3. The amount of cloud is given in tenths of the whole sky; the lower clouds are for the most part fracto-stratus; the middle clouds, cumulus; and the upper clouds, cirrus or cirro-stratus.

The observations at 7 a. m. and 3 p. m. at Kingston and Hill Gardens are also communicated in detail by Mr. Hall, but are not published at present, although eventually this may be done, as Hill Gardens is, like Blue Mountain, an interesting mountain station, for comparison with its near neighbors, Castleton Gardens and Kingston. If a mountain summit station can be obtained this also will be published. Many details with regard to the climate of Jamaica will be found in Mr. Hall's contributions to the official handbook published by the Government of that island in 1881.

The important mutual relations between the meteorology of the West Indies and the southern portion of the United States must stimulate the study of these records from Jamaica.